



**STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
COOKEVILLE ENVIRONMENTAL FIELD OFFICE
DIVISION OF WATER POLLUTION CONTROL**

**1221 SOUTH WILLOW AVENUE
COOKEVILLE, TN 38506**

PHONE 931-432-4015

STATEWIDE 1-888-891-8332

FAX 931-432-6952

March 14, 2012

CERTIFIED MAIL

91 7108 2133 3936 6362 2713

The Honorable Sabra Hodge
Mayor, City of Carthage
P. O. Box 259
Carthage, Tennessee 37030

**RE: Compliance Evaluation Inspection, Carthage WWTP, Smith County
NPDES # TN0022993, Permit Expiration: February 27th, 2014**

Dear Mayor Hodge:

On February 9th, 2012, personnel from the Tennessee Division of Water Pollution Control (WPC) conducted a Compliance Evaluation Inspection (CSI) at the Carthage Wastewater Treatment Plant (WWTP). The purpose of the CEI was to determine the reliability of data submitted on the Monthly Operation Reports (MORs) and the Discharge Monitoring Reports (DMRs), as well as to review the operation of the wastewater treatment system.

Wastewater Treatment Plant Operation

The Carthage treatment system, last updated in the late nineteen seventies (\approx 1978), consists of a head-works (manual bar-screen), activated sludge, a final clarifier, sludge removal/management and disinfection by chlorination (no residual chlorine removal is required). Corrosion around and within the tanks was noted. Handrails were rusting and may pose a potential safety hazard. The effluent discharge is to the Cumberland River at river mile 308. When WPC staff arrived at the plant on February 9th, 2012, a valid copy of the permit was on site. All records were readily available and easily located. The chlorine room was in excellent condition. The facility is staffed with two full time personnel, (Bucky Hardcastle and Ricky Brown). Mr. Hardcastle and Mr. Brown are both licensed operators at the Wastewater Treatment Plant and both perform the lab tests.

Permit / Records and Reports

The current permit was issued in 2009. The permit expires February 27th, 2014. Discharge Monitoring Reports (DMRs) and Monthly Operating Reports (MORs) for the past 12 months were essentially complete and correct. The analytical bench sheets displayed initials and collection times of the test samples.

A monthly collection system overflow report is to be submitted with the MORs and DMRs. **In the event that overflows of the system do not occur, a report should still be submitted stating such.**

Laboratory

Laboratory procedures were discussed. Calibration of laboratory equipment is performed bi-annually by Labtronics Incorporated. The lab's scale is in very good condition. Duplicate BOD(s) are being performed. The BOD samples are collected prior to chlorination. Seeding is not necessary. It is important to note that the influent and effluent flow proportional samplers were working. Operators are using the Idexx method for E. coli. Calibration logs are being maintained. Total Residual Chlorine will need to use potassium permanganate for the operation verification.

Receiving Waters

The discharge during the CEI was observed in the chlorine contact chamber at the effluent discharge weir. Clarity in the water column was being adversely affected by the loss of flock from the final clarifier. Mr. Brown explained that this was not typical of the effluent discharge. Adjustments were made to the STP to correct the problem. Control of this type of incident could be improved by new technology.

Flow Measurement

The influent flow is measured by a flume and ultra-sonic instrumentation. The effluent is measured by a weir and ultra-sonic instrumentation. Wascon Company is contracted to maintain the instruments. Flow instrument calibration should be coordinated with lab instrument calibration. The City of South Carthage pumps its waste to the City of Carthage WWTP. A flow measuring device exists separately and just up-stream of the WWTP for the South Carthage wastewater flow.

Sludge Handling

Digester capacity is very good. The class B solids are land applied on the Stallings' property.

Operation and Maintenance

Due to the age of the plant and the continuing corrosion issues, along with the recent sludge pump failure and the appearance of the effluent during this inspection, the City of Carthage should actively consider up grading the wastewater plant. New technology could improve flow measurement, reduce electrical and chemical costs. Improvements to the effluent discharge will likely be observed.

Collection System

The MOR review of influent flow data indicates that the WWTP's design capacity (0.625 MGD) is exceeded during some rain events.

Electronic Reporting

The operator (Mr. Ricky Brown) uses his own email to electronically report wastewater data. The City should install a computer with internet access at the wastewater plant.

Required Actions

Please respond to this inspection report by April 13th, 2012, regarding the maintenance improvements to be performed in order to reduce structural damage from corrosion.

In addition discuss up-grading the present facility. The current operating status is minimal with regard to meeting effluent standards.

Thanks are extended to Mr. Ricky Brown for his time and cooperation during the Compliance Evaluation Inspection.

If you have any questions, you may contact me in Cookeville via telephone at (931) 432-7635 or toll free at 1-(888)-891-8332. You may also use electronic mail at: Oakley.Hall@tn.gov.

Sincerely,



Wm. Oakley Hall
Environmental Field Office Manager
Division of Water Pollution Control
Cookeville Environmental Field Office

Enclosures: Photograph Documentation, 2-9-12; EPA Form 3560

cc: Jimmie Lee Clark – Cookeville EFO Director
Patrick Parker – Nashville Central Office, Enforcement and Compliance
Cookeville Environmental Field Office – Smith County, TN0022993 files



Tennessee Department of Environment
and Conservation
Division of

Water Pollution Control

Carthage Wastewater Treatment Plant
Photo Documentation Comparison
February 9th, 2012, Smith County

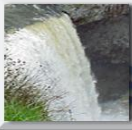
Solids should not be
in the chlorine
contact chamber



The chlorine contact chamber is pictured. Note the flock rising in the water column.



The effluent discharge from the chlorine contact chamber is exiting over the weir to the Cumberland River. Note that the discharge clarity is poor due to the rising solids.



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Carthage Wastewater Treatment Plant
Photo Documentation Comparison
February 9th, 2012, Smith County



Activated sludge unit (main treatment process). Note the corrosion on the steel shell which contains the activated sludge.



Corrosion is prevalent in the plant, 2-9-12. The primary clarifier is pictured. This unit is utilized during rain events. It is likely a source of unpleasant odors.

